peptase, the other an ereptase. He hopes soon to arrive at a general conclusion as to the nature of "vegetable trypsin," which by his admirable researches so far seems resolvable into a peptase and an ereptase.—C. R. B.

**Structure of chloroplasts.**—This has long been in doubt, the current doctrine being that the ordinary chloroplast consists of a stongy stroma in whose meshes the chlorophyll is held as a green fluid. PRIESTLEY and IRVING show[43] that in the large chloroplasts of *Chlorophytum elatum*, *Selaginella Kraussiana*, and *S. Martensii* the chlorophyll is restricted to a peripheral zone, probably less than 1$\mu$ thick, where it is held in the meshes of a spongy stroma. This agrees with the arrangement theoretically best according to TIMIRIAZEFF. The authors also confirm the neglected observations of NÄGELI and TIMIRIAZEFF on the splitting of the chloroplasts in solutions of low osmotic pressure.—C. R. B.

**Morphology of wheat.**—ARTHUR H. DUDLEY,[44] in a presidential address before the Liverpool Microscopical Society, presented an account of floral development, sporogenesis, and embryogeny in wheat. A summary of his results is as follows: the archesporium of the microsporangium is a single row of cells, two or three divisions occurring before the mother-cell stage is reached; the archesporial cell of the megasporangium does not cut off a parietal cell, but produces directly the linear tetrad, the reduction number of chromosomes being eight; a large development of antipodal tissue occurs; and the embryo is said to be derived from the "apical cell only" of the proembryo.—J. M. C.

**Scion and stock.**—GUIGNARD has made another attempt to settle the question whether compounds peculiar to either scion or stock are able to migrate past the point of grafting.[45] When a plant which contains an HCN-glucoside is grafted on a plant which contains none, or conversely (GUINARD used *Phaseolus lunatus*, *Photinia serrulata*, and five species of Cotoneaster), there is no transfer of this glucoside in either direction. This adds one more bit to the negative evidence that is accumulating against the uncertain positive claims of such migration. The paper contains a good history of the question.—C. R. B.

**Tolerance for salts.**—Continuing their work on the relation between alkali soils and vegetation, KEARNEY and HARTER, testing pure solutions of various salts, find[46] that different species and even different varieties of the same species differ considerably in resistance to the action of magnesium and sodium salts.

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[43] PRIESTLEY, J. H., and IRVING, ANNIE A., The structure of the chloroplast considered in relation to its function. Annals of Botany **21**:407–413. *figs. 2.* 1907.

[44] DUDLEY, ARTHUR H., Floral development and embryogeny in wheat. Report Liverpool Micros. Soc. 1908 1–19. *pls. 1, 2.*

[45] GUIGNARD, L., Recherches physiologiques sur la greffe des plants à acide cyanhydrique. Ann. Sci. Nat. Bot. IX. **6**:261–305. *figs. 9.* 1907.

[46] KEARNEY, T. H., and HARTER, L. L., The comparative tolerance of various plants for the salts common in alkali soils. U. S. Dept. Agric., Bur. Pl. Ind., Bull. 113. pp. 22. 1907.

Seedlings grown from fresh seed are much more resistant than those from older seed. By different experimentation they confirm the findings of other observers as to the power of calcium salts (they speak of sulfate) to offset the toxic action of magnesium and sodium salts.—C. R. B.

**Edwin James.**—Students of taxonomy will be interested in a recent paper by PAMMEL,[47] which gives an account of Dr. JAMES, whose name is so intimately associated with the early explorations of the Rocky Mountain region. Not only numerous plants, but also a mountain peak bears his name, though the latter is now better known as Pike's Peak. Through papers found in the Parry herbarium, local biographical sketches, and information obtained directly from relatives, a very satisfactory account has been prepared, and the personality of JAMES is thus rescued for botanists.—J. M. C.

**Conifers of China.**—The late MAXWELL T. MASTERS left a paper on the distribution of conifers in China, which has just been published.[48] The total number of species known from China at the time of writing (June 20, 1907), inclusive of Formosa, was 87, distributed among 23 genera. In one table China and Japan are compared; the former containing 87 species, of which 42 are peculiar; the latter 48 species, of which 15 are peculiar. A large table shows the distribution of all the native species of China in the various regions of the empire as well as in neighboring countries.—J. M. C.

**Nuclear division in Basidiobolus.**—OLIVE[49] has studied nuclear and cell division both in the beaks and in the vegetative cells of Basidiobolus. The spindle is broad, cylindrical, barrel-shaped, and intranuclear. At the equatorial plate stage it shows three darkly staining regions, the chromatin plate at the center and two pole plates at the ends. The wall is formed as a ring, which begins at the periphery of the cell and closes in like an iris diaphragm, as in many algae, a mode of growth quite different from that described by FAIRCHILD in 1897.—CHARLES J. CHAMBERLAIN.

**Variegation and infectious chlorosis.**—Those who are interested in these problems will find useful an extensive paper by LINDEMUTH,[50] which embodies a precise and comprehensive exposition of the results of his studies on variegation, which go back as far as 1870, and have been continued with more or less vigor to

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[47] PAMMEL, L. H., Dr. Edwin James. Annals of Iowa **8**:161–185, 277–295. 1908. Also distributed as a separate.

[48] MASTERS, MAXWELL T., On the distribution of the species of conifers in the several districts of China, and on the occurrence of the same species in neighboring countries. Jour. Linn. Soc. Bot. **38**:198–205. 1908.

[49] OLIVE, E. W., Cell and nuclear division in Basidiobolus. Annales Mycol. **5**:404–418. *pl. 10.* 1907.

[50] LINDEMUTH, H., Studien über die sogennannte Panaschüre und über einige begleitende Erscheinungen. Landw. Jahrb. **36**:807–862. *pls. 8, 9. figs. 16.* 1907.